

**WHAT IS CLAIMED IS:**

1. A distributed feedback laser comprising:

a guide layer including a plurality of waveguides coupled in a stepped multi-  
5 branch structure, the guide layer used as a transmission medium for light having a  
predetermined wavelength; and

an active layer, formed on the guide layer, for oscillating light, wherein

light is branched according to a predetermined ratio while proceeding from a  
higher waveguide to a lower waveguide within the guide layer.

10

2. The distributed feedback laser as claimed in claim 1, wherein the distributed  
feedback laser further comprises a grating which is formed under the guide layer and has a  
predetermined period.

15

3. The distributed feedback laser as claimed in claim 2, wherein the grating is  
formed under a lowest waveguide in the guide layer.

4. The distributed feedback laser as claimed in claim 1, wherein the distributed  
feedback laser further comprises:

20

a semiconductor substrate;

a lower clad layer interposed between the semiconductor substrate and the guide  
layer; and

an upper clad layer on the active layer and the lower clad layer so as to surround the guide layer.

5. The distributed feedback laser as claimed in claim 4, wherein the distributed feedback laser further comprises:

a upper electrode formed on the upper clad layer; and  
a lower electrode formed under the semiconductor substrate.

6. A distributed feedback laser comprising:  
10 a guide layer having at least a higher and a lower waveguide coupled in a stepped branch structure, wherein light is transmitted having a predetermined wavelength; and  
an active layer, formed on the guide layer, for oscillating light, wherein  
light is branched according to a predetermined ratio while proceeding from the  
higher waveguide to the lower waveguide.

15

7. The distributed feedback laser as claimed in claim 6, wherein the distributed feedback laser further includes a grating that is formed under the guide layer and has a predetermined period.

20 8. The distributed feedback laser as claimed in claim 7, wherein the grating is formed under the lower waveguide in the guide layer.

9. A distributed feedback laser comprising:

a guide layer having at least a higher and a lower waveguide coupled in a hierarchal Y-structure; and

an active layer, formed on the guide layer, for oscillating light,

5 wherein light is transmitted having a predetermined wavelength, and the light is subjected to loss, using the hierarchal Y-structure, according to a predetermined ratio while proceeding in a predetermined direction in the laser.

10 10. The distributed feedback laser as claimed in claim 9, wherein the distributed feedback laser further includes a grating that is formed under the guide layer and has a predetermined period.